



**CALIFORNIA
HIGH-SPEED RAIL
AUTHORITY**

BRIEFING: BOARD MEETING AGENDA ITEM #7

TO: Chairman Umberg and Authority Board Members

FROM: Gregg Albright, Deputy Program Director

DATE: January 4, 2012

RE: Strategic Energy Plan & Implementation

Discussion

The Authority has expressed its intention to take a comprehensively sustainable approach to the design, delivery and operation of the high-speed rail system. They have illustrated this approach through a range of documents, policies and partnerships. In particular, on September 3rd, 2008, the HSRA Board adopted a policy “to power the train with clean renewable energy, making it the first true zero-emission train in the world.” (http://www.cahighspeedrail.ca.gov/energy_policy_goal.aspx)

This policy goal represents progressive leadership among high-speed rail systems towards reduction of direct greenhouse gas emissions. While progressive, the policy goal indicates a benchmark to which other systems are aspiring, and is consistent with California’s leadership position on sustainability issues.

CHSRA’s commitment to renewable energy creates an opportunity to strengthen public health and the economy in California. Use of renewable energy in place of fossil fuels prevents the release of pollutants known to cause asthma, cancer, and other illnesses. Supporting renewable energy development in California also means creating more long-term, well-paying jobs, and reinforces the renewable energy economy in California.

Trend analysis indicates that energy prices and supply will remain high and volatile for the next twenty years, if current trends hold (“A New Era for Commodities” McKinsey Quarterly. November 2011). Specifically in California, the Public Utilities Commission (CPUC) identified that real costs of electricity will be significantly higher in 2020 compared to 2008 whether or not California pursues a 20% or 33% renewable percentage standard (RPS) goal. (“33% RPS Implementation Analysis Preliminary Results”, CPUC 2009) Procuring renewable energy provides some price and supply certainty for the Authority.

Fortunately, cost-effective, renewable energy for project operations can be achieved if actions are undertaken now, integrated into the delivery of the project, and carried out consistently. (See Attachments: Navigant Report Executive Summary and Extract from White Paper)

Strategic Energy Plan

The Sustainability Partnership is a collaboration among the Authority, FRA, HUD (Region 9), FTA (Region 9), and the US EPA (Region 9). Thanks to this partnership, the Authority successfully requested technical assistance from the Department of Energy, by means of US EPA's technical assistance program with other federal agencies. The assistance resulted in a Strategic Energy Plan researched and drafted by the National Renewable Energy Lab (NREL). (See Attachment: Strategic Energy Plan).

NREL identifies three goals in the SEP that support the achievement of the Authority's vision for a sustainable train.

- Power the high speed train system on 100% renewable energy,
- Foster a robust, sustainable economy in California, and
- Enact best practices for energy sustainability.

Development of the SEP clarified the steps that the Authority and its program management team can take to achieve 100% renewable energy for train operations. The policy logically covers all operation energy needs, including facilities.

Importantly, the SEP notes that powering the train and facilities with 100% renewable energy will require a net-zero approach. This refers to procuring and producing enough new renewable energy to supply to the grid to equal the energy load used by the train. Specifics of a net-zero approach must be clarified by the Authority as it implements this SEP. However, it must be emphasized that articulating "net-zero" as the approach the Authority will take to achieving its goal is an important first step.

The Authority will procure or provide to the grid the amount of energy that it requires for operations. Reinforcing the existing grid provides the benefit of renewable energy for all Californians, as well as reducing costs for the project. The Authority will be an active stakeholder to help California achieve the ambitious renewable portfolio standard (RPS) goals by 2020.

Underpinning the goal to procure 100% renewable energy for the project are on-going actions by the Authority and its delivery team to minimize energy loads in rolling stock, systems, and facilities and prioritize efficiency in design parameters. Current analysis indicates that there is not physical space, funding, or technical feasibility for utility scale generation on Authority ROW to supply traction power loads. However, the SEP emphasizes further study to explore what feasible opportunities exist for small-scale on-site renewable energy generation, and clarification of policy to take advantage of future innovation.

Sustainability Framework

Many activities and strategies suggested under the SEP point to sustainability as an organizing framework for the high-speed rail program. A sustainability framework illustrates and aligns common actions and objectives to better exploit synergies among them, critical for achieving the program's ambitious goals.

Sustainability frameworks are a value-proposition for many organizations, and for dozens of public transport, and specifically, high-speed rail properties. (See Attachment: Matrix) This echoes a wider, global business trend of companies using sustainability as a tool to organize incongruent environmental, financial and social concerns as well as to report on company performance with a finer grain of indicators.

For many companies and agencies, sustainability is a critical brand and identity. McKinsey's sixth annual global survey on sustainability found "larger shares of executives say sustainability programs make a positive contribution to their companies' short- and long-term value." The choice for most companies

“is not if, but how, they should manage their sustainability activities. Companies can choose to see this agenda as a necessary evil—a matter of compliance or a risk to be managed while they get on with the business of business—or they can think of it as a novel way to open up new business opportunities while creating value for society.” (“The Business of Sustainability: McKinsey Global Survey Results” October 2011)

Implementation of the renewable energy policy goal, as well as other critical project and program objectives such as environmental excellence and strengthening California communities, will continue with integrating sustainability into Authority management and program management, project delivery and ongoing procurement through the adoption of a sustainability framework.

Organizing the Authority’s policies and approaches to sustainability will provide clear signals to interested stakeholders concerning appropriate, market-based solutions to its ambitious goals. These clear signals will help with achieving life-cycle cost effectiveness. For the Authority, sustainability can help position the project to be competitive on the international market, as well as reflect the reputation of California as a sustainability leader.

Conclusions

- Based on guidance from the SEP, the staff will prepare relevant policies and guidance documents to implement the renewable energy policy goal for all rail operations
- Staff will prepare a sustainability framework to guide HSR program development and implementation.
- The Authority will take a net-zero approach to achieving the 100% renewable energy goal for rail operations, in addition to continuing to minimize energy demand throughout the system

Attachments

- ✓ Strategic Energy Plan (NREL, December 2011)
- ✓ The Use of Renewable Sources to Provide Power to California’s High Speed Rail. Executive Summary. (Navigant, September 2008)
- ✓ **Extract from** “White Paper on 100% renewable power for operation of CHST” (Parsons Brinckerhoff, January 2011)
- ✓ Matrix: High-Speed Rail Sustainability Programs & Energy Commitments (Parsons Brinckerhoff, January 2012)

Other Sited Sources

California High Speed Rail Energy Policy Goal

http://www.cahighspeedrail.ca.gov/energy_policy_goal.aspx

“33% RPS Implementation Analysis Preliminary Results”, CPUC 2009

<http://www.cpuc.ca.gov/NR/rdonlyres/B123F7A9-17BD-461E-AC34-973B906CAE8E/0/ExecutiveSummary33percentRPSImplementationAnalysis.pdf>

“A New Era for Commodities” McKinsey Quarterly. November 2011

https://www.mckinseyquarterly.com/A_new_era_for_commodities_2887

“The Business of Sustainability: McKinsey Global Survey Results” October 2011

https://www.mckinseyquarterly.com/The_next_environmental_issue_for_business_McKinsey_Global_Survey_results_2651